

What is claimed is:

1. A radiator system, comprising:

a high-temperature body being a thermal source;

a receiver with the high-temperature body boarded thereon,
the receiver receiving heat from the high-temperature body; and

a thermal buffer interposed at least between the high-
temperature body and the receiver to buffer thermal transmission
from the high-temperature body to the receiver;

whereby the heat from the high-temperature body is radiated
by the receiver or is radiated by way of the receiver;

wherein the thermal buffer comprises a high thermal conductor,
and a low expander disposed at a position facing the high-temperature
body and buried in the high thermal conductor; and

the thermal buffer has a first bonding area with respect to
the high-temperature body, and a second bonding area with respect
to the receiver, the second bonding area being enlarged greater than
the first bonding area.

2. The radiator system set forth in claim 1, wherein said thermal
buffer comprises the low expander buried in said high thermal
conductor and having an outer surface surrounded by the high thermal
conductor.

3. The radiator system set forth in claim 1, wherein the low
expander comprises a material whose linear expansion coefficient
is smaller than that of said high-temperature body.

4. The radiator system set forth in claim 1, wherein the low expander comprises an invar alloy.

5. The radiator system set forth in claim 1, wherein the high thermal conductor comprises a pure metal or alloy whose major component is copper (Cu) or aluminum (Al).

6. The radiator system set forth in claim 1, wherein said receiver comprises a metallic body with a metallic material base.

7. A radiating method for radiating heat from a high-temperature body being a thermal source by a receiver with the high-temperature body boarded thereon, the receiver receiving the heat from the high-temperature body, or radiating the heat by way of the receiver, the radiating method comprising the step of:

preparing a thermal buffer interposed at least between the high-temperature body and the receiver to buffer thermal transmission from the high-temperature body to the receiver,

wherein the thermal buffer comprises a high thermal conductor, and a low expander disposed at a position facing the high-temperature body and buried in the high thermal conductor; and

the thermal buffer has a first bonding area with respect to the high-temperature body, and a second bonding area with respect to the receiver, the second bonding area being enlarged greater than the first bonding area.

8. A thermal buffer interposed at least between a high-temperature body being a thermal source and a receiver with the

high-temperature body boarded thereon, the receiver receiving heat from the high-temperature body, to buffer thermal transmission from the high-temperature body to the receiver,

wherein the thermal buffer comprises a high thermal conductor, and a low expander disposed at a position facing the high-temperature body and buried in the high thermal conductor; and

the thermal buffer has a first bonding area positioned with respect to the high-temperature body, and a second bonding area positioned with respect to the receiver, the second bonding area being enlarged greater than the first bonding area.

9. A semiconductor module, comprising:

a semiconductor device being a thermal source;

a substrate with the semiconductor device boarded thereon;

and

a heat spreader interposed between the semiconductor device and the substrate to diffuse heat from the semiconductor device to the substrate;

wherein the heat spreader comprises a high thermal conductor, and a low expander disposed at a position facing the semiconductor device and buried in the high thermal conductor; and

the heat spreader has a first bonding area between the heat spreader and the semiconductor device and with respect to the semiconductor device, and a second bonding area between the heat spreader and the substrate and with respect to the substrate, the second bonding area being enlarged greater than the first bonding area.

10. A heat spreader interposed between a semiconductor device being a thermal source and a substrate with the semiconductor device boarded thereon to diffuse heat from the semiconductor device to the substrate,

wherein the heat spreader comprises a high thermal conductor, and a low expander disposed at a position facing the semiconductor device and buried in the high thermal conductor; and

the heat spreader has a first bonding area between the heat spreader and the semiconductor device and with respect to the semiconductor device, and a second bonding area between the heat spreader and the substrate and with respect to the substrate, the second bonding area being enlarged greater than the first bonding area.

11. A semiconductor module, comprising:

a semiconductor device being a thermal source;

a heatsink receiving heat from the semiconductor; and

a substrate having opposite surfaces, bonded to the semiconductor device on one of the opposite surfaces, and bonded to the heatsink on the other one of the opposite surfaces to transmit the heat from the semiconductor device to the heatsink;

wherein the substrate comprises a high thermal conductor, and a low expander disposed at a position facing the semiconductor device and buried in the high thermal conductor; and

the substrate has a first bonding area between the substrate and the semiconductor device and with respect to the semiconductor device, and a second bonding area between the substrate and the heatsink and with respect to the heatsink, the second bonding area

being enlarged greater than the first bonding area.

12. A substrate having opposite surfaces, bonded to a semiconductor device being a thermal source on one of the opposite surfaces, and bonded to a heatsink receiving heat from the semiconductor device on the other one of the opposite surfaces to transmit the heat from the semiconductor device to the heatsink, wherein the substrate comprises a high thermal conductor, and a low expander disposed at a position facing the semiconductor device and buried in the high thermal conductor; and

the substrate has a first bonding area between the substrate and the semiconductor device and with respect to the semiconductor device, and a second bonding area between the substrate and the heatsink and with respect to the heatsink, the second bonding area being enlarged greater than the first bonding area.

13. A semiconductor module, comprising:

a substrate being a thermal source;

a heatsink receiving heat from the substrate; and

a heat spreader having opposite surfaces, bonded to the substrate on one of the opposite surfaces, and bonded to the heatsink on the other one of the opposite surfaces to transmit the heat from the substrate to the heatsink;

wherein the heat spreader comprises a high thermal conductor, and a low expander disposed at a position facing the substrate and buried in the high thermal conductor; and

the heat spreader has a first bonding area between the heat spreader and the substrate and with respect to the substrate, and

a second bonding area between the heat spreader and the heatsink and with respect to the heatsink, the second bonding area being enlarged greater than the first bonding area.

14. A heat spreader having opposite surfaces, bonded to a substrate being a thermal source on one of the opposite surfaces, and bonded to a heatsink receiving heat from the substrate on the other one of the opposite surfaces to transmit the heat from the substrate to the heatsink,

wherein the heat spreader comprises a high thermal conductor, and a low expander disposed at a position facing the semiconductor device and buried in the high thermal conductor; and

the heat spreader has a first bonding area between the heat spreader and the substrate and with respect to the substrate, and a second bonding area between the heat spreader and the heatsink and with respect to the heatsink, the second bonding area being enlarged greater than the first bonding area.